

Apparel and Other Textile Products

(SIC 23)

SIGNIFICANT POINTS

- Nearly half of all workers are sewing machine operators.
- Primarily due to increased imports and new technology, apparel manufacturing is projected to lose 178,000 jobs—more than almost any other industry—over the 1998-2008 period.
- Average earnings are below those of other manufacturing industries.

Nature of the Industry

The range of apparel and other textile products is as broad as their uses—suits, rainwear, fur coats, purses, and curtains are just a few examples. Workers in the apparel industry transform fabrics produced by textile manufacturers into these finished goods and many others that fill the Nation's retail stores. By cutting and sewing fabrics or other materials, such as leather, rubberized fabrics, plastics, and furs, workers in this industry help to keep us warm, dry, and in style.

As in other industries, technological advances, globalization, and changing business practices are affecting the apparel industry. One significant change is the increased emphasis on quick response to customer demand. This ability is vital in an industry that sells its products in an ever-changing, fashion-conscious market. Quick response capability links apparel producers more closely to related firms in the textile and retail sectors of the economy. Aided by communications technology, such as electronic data interchange, point of sale terminals, and bar codes, information is instantaneously communicated to and received from firms in these industries.

Other technologies affecting the apparel industry include computerized equipment and material transport systems. Computers and computer-controlled equipment aid in many functions, such as design, marking, and cutting. Overhead conveyor systems transport material between sewing machine operators and between processes. Despite these changes, however, the apparel industry—especially its sewing function—has remained significantly less automated than many other manufacturing industries.

The apparel industry traditionally has consisted of production workers who perform a specific function in an assembly line. This organizational philosophy increasingly is being replaced by a team concept, in which garments are made by a group of sewing machine operators organized into production “modules.” Each operator in a module is trained to perform nearly all of the functions required to assemble a garment. Each team is responsible for its own performance, and individuals usually receive compensation based on the team's performance. These changes have greatly altered the atmosphere and responsibilities from those of the traditional assembly line.

Fierce competition from abroad has prompted these changes in work structure and technology. Apparel firms also have responded to growing competition by merging and employing workers in other countries to perform some production functions. Workers in lower-wage countries are increasingly being hired to assemble garments—the most labor-intensive step in the production process—whereas U.S. workers now

perform a greater share of the pre-assembly functions and coordinate the process. Such changes in the nature of the domestic apparel industry will certainly continue as globalization proceeds.

Working Conditions

Working conditions depend on the age of the facility, the equipment used, and company policies. Sewing machine operators and other production workers work an average of 37.3 hours weekly, but overtime is common during periods of peak production. Some firms in the industry operate several shifts and may require employees to work nights or weekends. As more expensive machinery is introduced, companies may add shifts to keep expensive machines from being idle.

Factories are generally clean, well lit, and well ventilated, but sewing areas may be noisy. Operators often sit for long periods of time and lean over machines. New ergonomically designed chairs and machines that allow workers to stand during operation are some ways that firms seek to minimize discomfort for production workers. Another concern for workers is injuries caused by repetitive motions. The implementation of modular units and specially designed equipment reduces potential health problems by lessening the stress of repetitive motions. In 1997, cases of work-related injury and illness in the apparel industry averaged 7.0 per 100 workers, lower than the 10.3 average in all manufacturing industries, and about the same as the 7.1 rate for all industries.

The movement away from traditional piecework systems often results in a significant change in working conditions. Modular manufacturing involves teamwork, increased responsibility, and greater interaction among coworkers than traditional assembly lines.

Employment

The apparel industry provided about 763,000 wage and salary jobs in 1998. As shown in table 1, employment is concentrated in three segments of the industry. Women's and misses' outerwear accounts for about 28 percent of the industry's employment; men's and boys' furnishings, 25 percent; and miscellaneous fabricated textile products, 29 percent. Together, these segments employ 4 out of every 5 workers in the industry.

Most jobs are found in eight States: Alabama, California, Georgia, New York, North Carolina, Pennsylvania, Tennessee, and Texas. The industry had about 24,000 establishments in 1998, with employment concentrated in large firms. Three

out of four jobs are in establishments with 50 or more workers (chart).

Table 1. Percent distribution of establishments and employment in apparel and other textile products, 1997

Industry segment	Establishments	Employment
Total	100.0	100.0
Miscellaneous fabricated textile products	42.0	28.8
Women's and misses', outerwear	36.9	27.9
Men's and boys' furnishings	9.3	25.3
Girl's and children's outerwear	2.5	4.1
Women's and children's undergarments	1.6	3.9
Men's and boys' suits and coats	1.2	3.9
Miscellaneous apparel and accessories	3.9	3.7
Hats, caps, and millinery	1.7	2.4
Fur goods	0.5	0.1

SOURCE: U. S. Department of Commerce, *County Business Patterns*, 1997

Occupations in the Industry

Although a variety of workers are needed to produce apparel and other textile products, operators, fabricators, and laborers account for about 70 percent of total employment in the industry. About half of all workers are sewing machine operators (table 2).

Fashion designers are the artists of the apparel industry. They create ideas for a range of products including coats, dresses, hats, handbags, and underwear. Some are self-employed and work with individual clients, while others cater to fashion specialty stores or high-fashion department stores. Most fashion designers work for apparel manufacturers or retailers, adapting fashion trends for specific markets.

Before sewing can begin, pattern pieces must be made, layouts determined, and fabric cut. *Patternmakers* create the "blueprint" or pattern pieces for a particular apparel design. This often involves "grading," or adjusting the pieces

for different sized garments. Grading once was a time-consuming job, but now it is quickly completed with the aid of a computer. *Markers* determine the best arrangement of pattern pieces to minimize wasted fabric. Traditionally, markers judged the best arrangement of pieces by eye; today, computers quickly help determine the best layout.

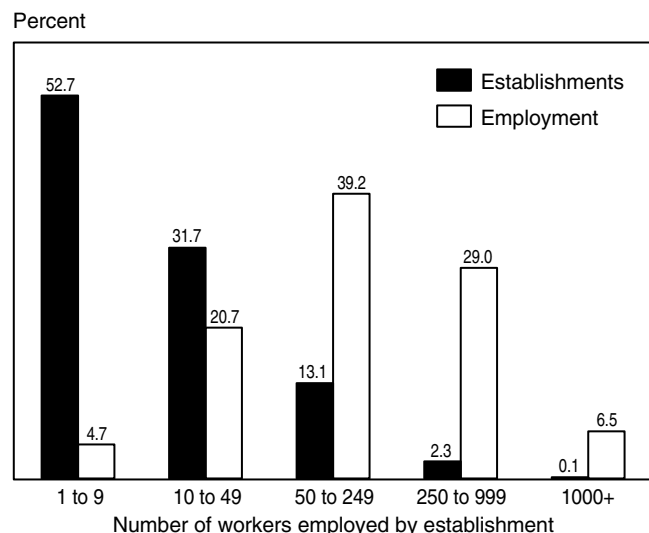
Table 2. Employment of wage and salary workers in apparel and other textile products by occupation, 1998 and projected change, 1998-2008

(Employment in thousands)

Occupation	1998		1998-2008 Percent change
	Number	Percent	
All occupations	763	100.0	-23.3
Operators, fabricators, and laborers ...	533	69.8	-24.9
Sewing machine operators, garment	287	37.5	-36.2
Sewing machine operators, non-garment	63	8.2	0.1
All other assemblers, fabricators, and hand workers	35	4.5	-6.5
Hand packers and packagers	22	2.8	-14.6
Textile draw-out and winding machine operators	20	2.6	-15.5
Pressing machine operators and tenders, textile, garment, and related materials	13	1.7	-42.5
Freight, stock, and material movers, hand	13	1.7	-31.7
Cutters and trimmers, hand	12	1.6	-27.1
All other helpers laborers and material movers, hand	11	1.4	-10.7
Cutting and slicing machine setters, operators, and tenders	10	1.3	-17.6
Screen printing machine setters	7	1.0	4.9
Precision production, craft, and repair	89	11.7	-18.5
Blue-collar worker supervisors	26	3.4	-16.9
Inspectors, testers, and graders	24	3.1	-31.7
Patternmakers and layout workers, fabric and apparel	12	1.5	-4.5
Industrial machinery mechanics	10	1.3	-15.0
Administrative support, including clerical	69	9.0	-25.1
Shipping, receiving, and traffic clerks	17	2.2	-26.6
Financial records processing occupations	12	1.6	-31.9
General office clerks	9	1.2	-16.6
Executive, administrative, and managerial	35	4.6	-17.1
General managers and top executives	14	1.9	-14.1
Marketing and sales	17	2.2	-15.9
Professional specialty	11	1.5	2.7
All other occupations	9	1.2	-27.5

The layout arrangement is then given to *cutters*. In less automated companies, cutters may use electric knives or cutting machines to cut pattern pieces. In more automated facilities, markers electronically send the layout to a computer-controlled cutting machine, and the cutter monitors the machine's work. As a result, computer-controlled machine operators are replacing many cutters.

Three out of 4 jobs in apparel and other textile products are in establishments with 50 or more workers



Source: U.S. Department of Commerce, *County Business Patterns*, 1997

Sewing machine operators assemble or finish clothes or other goods such as curtains and purses. Most sewing functions are specialized and require the operator to receive specific training. Although operators specialize in one function, the trend toward cross-training requires them to broaden their skills.

Cutters, trimmers, inspectors and *pressers* receive a garment after it has been assembled. Cutters, trimmers, and inspectors finish the product by trimming loose threads. Pressers eliminate wrinkles and give shape to finished products. Most pressers use specially formed, foot-controlled pressing machines to perform their duties. Some pressing machines now have the steam and pressure controlled by computers.

Training and Advancement

Most production workers are trained on the job. Although a high school diploma is not required, some employers prefer it. Basic math and computer skills are important for computer-controlled machine operators.

Cutters and pressers are trained on the job, while patternmakers and markers usually have technical or trade school training. All of these workers must understand textile characteristics and have a good sense of three-dimensional space. Traditional cutters need exceptional hand-eye coordination. Computers are becoming a standard tool for these occupations as patternmakers and markers increasingly design pattern pieces and layouts on a computer screen, so new entrants will help themselves by learning computer skills. Those running automatic cutting machines could need technical training, which is available from vocational schools.

Sewing machine operators must have good hand-eye coordination and dexterity, as well as an understanding of textile fabrics. They normally are trained on the job for a period of several weeks to several months, depending on their previous experience and the function for which they are training. Setting a sleeve, for example, is more complicated and requires more training than sewing a side seam. In general, though, new machinery greatly reduces the required skill level and training needed to perform many functions.

Modular manufacturing requires operators to perform more than one function, so they are usually trained to perform several duties. In addition to this functional training, workers in a modular system may also be offered courses in the interpersonal and communication skills necessary to work as part of a team. Further, the added responsibility of self-managing their modules may lead these workers to receive training in problem solving and management.

Designers need a good sense of color, texture, and style. In addition, they must understand the construction and characteristics of specific fabrics, such as durability and stiffness. This specialized training usually is obtained through a university or design school that offers 4-year or 2-year degrees.

Those interested in engineering or production management need a bachelor's degree. Degrees in mechanical, chemical, or industrial engineering are common, but related studies may also be accepted. A few programs offer concentrations in apparel and textile production that focus on the unique characteristics and issues associated with apparel production. Universities offering these specializations are generally found in the South and Northeast.

Earnings

Average weekly earnings for production workers were \$318 in 1998, significantly lower than the overall \$563 per week in manufacturing and \$442 in the entire private sector. Table 3 shows average weekly and hourly earnings in various segments of the apparel industry.

Table 3. Average earnings of nonsupervisory workers in the apparel and other textile products industry, 1998

Industry segment	Weekly	Hourly
Total, private industry	\$442	\$12.77
Apparel and other textile products	318	8.52
Miscellaneous fabricated textile products	368	9.39
Men's and boy's suits and coats	324	8.69
Miscellaneous apparel and accessories	300	8.15
Women's and children's undergarments	300	8.14
Women's and misses' outerwear	297	8.18
Girl's and children's outerwear	295	8.07
Men's and boy's furnishings	292	7.98

Earnings in selected occupations in apparel and other textile products appear in table 4. Traditionally, sewing machine operators are paid on a piecework basis determined by the quantity of goods they produce. Many companies are changing to incentive systems based on group performance that consider both the quantity and quality of the goods produced. A few companies pay production workers a salary.

Table 4. Median hourly earnings of the largest occupations in apparel and other textile products, 1997

Occupation	Apparel and other textile products	All industries
General managers and top executives ...	\$26.01	\$26.05
First-line supervisors and supervisor/managers-production and operating workers	11.38	16.62
Assemblers and fabricators, except machine, electrical, electronic, and precision	9.02	9.25
Shipping, receiving, and traffic clerks	8.02	10.29
Textile machine operators and tenders, winding, twisting, knitting, weaving, and cutting	7.88	9.03
Sewing machine, non-garment	7.57	7.91
Production inspectors, testers, graders, sorters, samplers, and weighers	7.56	10.15
Pressing machine operators and tenders, textile, garment, and related materials	7.45	7.09
Hand packers and packagers	6.83	6.90
Sewing machine operators, garment	6.69	6.92

The apparel industry has a relatively low unionization rate; about 8.5 percent of apparel workers are union members or

are covered by a union contract, compared with 15.4 percent for the economy as a whole. The major union in the apparel industry is the Union of Needletrades, Industrial, and Textile Employees (UNITE), which was formed in 1995 from the International Ladies' Garment Workers Union and the Amalgamated Clothing and Textile Workers Union.

Outlook

Wage and salary employment in the apparel industry is expected to decline 23 percent through 2008, while employment throughout the economy is projected to increase 15 percent. The expected decline translates into 178,000 lost jobs over the period—greater than almost any other industry. Declining employment will be caused by growing imports, new automation, and fierce cost-cutting pressures imposed by retailers and international competition. Nevertheless, some job openings will arise as experienced workers transfer to other industries, retire, or leave the workforce.

Changing trade regulations are the single most important factor influencing future employment patterns. Because the apparel industry is labor-intensive, it is especially vulnerable to import competition from nations in which workers receive lower wages. The protection provided to the domestic apparel industry over the past two decades will be significantly reduced in coming years, enabling more apparel imports. Because many U.S. firms will continue to move their assembly operations to low-wage countries, this trend is likely impact lower-skilled machine operators most severely. It will not, however, have as adverse an effect on the demand for some of the pre-sewing functions, such as designing and cutting, because much of the apparel will still be designed and cut in the United States.

New technology will increase the apparel industry's productivity, but unlike other industries, the apparel industry is likely to remain labor-intensive. The variability of cloth and the intricate cuts and seams of the assembly process have been difficult to automate. Machine operators, therefore, will continue to perform most sewing tasks, and automated sewing will be limited to simple functions. In some cases, however, computerized sewing machines will increase the productivity of operators and reduce required training time.

Technology also is increasing the productivity of workers who perform other functions such as designing, marking, cutting, and pressing. Computers and automated machinery will continue to lift productivity and reduce the demand for workers in these areas, but the growth in demand for their services generated by offshore assembly sites will help to moderate this decline. These workers also will benefit from the increasing rate at which fashions change, which will produce greater demand for workers who are employed in firms in the United States that have quick response capabilities.

Cost-cutting pressures will be applied to all workers in the apparel and textile industries by continuing changes in the market for apparel goods. As consumers become more price-conscious, retailers gain bargaining power over apparel producers, and increasing competition limits the ability of producers to pass on costs to consumers, apparel firms are likely to respond by relying more on foreign production and boosting productivity through investments in technology and new work structures. These responses will adversely affect employment of American apparel workers.

Sources of Additional Information

Information about job opportunities in technical and design occupations can be obtained from colleges offering programs in textile and apparel engineering, production, and design. For information about career opportunities, trade developments, and technology, contact:

- American Apparel Manufacturing Association, 2500 Wilson Blvd., Suite 301, Arlington, VA 22201.
Internet: <http://www.americanapparel.org>

Information on many occupations in apparel manufacturing, including those listed below, appears in the 2000-01 *Occupational Outlook Handbook*:

- Apparel workers
- Designers
- Engineers
- Textile machinery operators